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Mr. Richard H. Karney, P.E.
Manager, Energy Star Program
Building Technologies Program
US Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

**Southern California
Gas Company**

*1919 S. State College Blvd.
SC 8389
Anaheim, CA 92806-6114*

Tel. 714-634-5048

Fax 714-634-5051

Subject: Comments on the Analysis and Proposals for Energy Star Criteria for Residential Water Heaters

These are the comments of the Southern California Gas Company on the D&RI research, analysis and proposals for an Energy Star program component for residential water heaters published on April 4, 2003. While the DR&I report appears to be thorough on the surface, it avoids discussion of many practical issues associated with an Energy Star criteria for residential water heaters. Since the devil is almost always in the details, this avoidance of detail could lead to numerous issues and interpretations for Energy Star program administrators and an ineffective program overall. The following comments highlight some of my concerns and thoughts:

1) EPA must be extremely careful to not inadvertently encourage the installation of electric resistance water heaters in new homes due to their generally lower first costs for builders. If builders have an option when installing an "Energy Star" water heater, they may pick the lowest cost option to increase profits, at the expense of the consumer when alternate energy sources are available. This phenomenon is well documented in the paper "Impacts of Minnesota Energy Code on Residential Water Heater Installations: Energy Cost, Emissions, Safety, and Electric Reliability" (Copyright 2001 American Gas Association). In this case, the Minnesota Energy Code promoted the installation of direct vent, power vent or sealed combustion gas appliances to address perceived indoor air quality issues. As a direct result of this code, Minnegasco's new construction market share for residential water heaters fell from above 90% to below 76% (Minnegasco 2001) in a short period of time. The unintended consequence of this energy code provision was the use of more energy and the creation of more pollution through increased use of electric resistance storage water heaters.

This EPA Energy Star program could also cause this inadvertent problem, and the author's recognize this in the paper, but don't really address it directly under the guise of "giving options". Recognizing that electric technologies are the only options for many consumers, EPA should use the Energy Star program to promote Heat Pump and Solar assisted technologies only. If an Energy Star label

is given to any electric resistance storage water heater, the market can take advantage of that label in ways that may not ultimately save energy.

2) The background paper does not address a number of important issues with water heating technologies other than “conventional” storage water heaters. For example, instantaneous water heaters have been shown to create water quality problems because of the high amount of instantaneously applied heat. The cost of water filters to address these issues can be significant. In addition, gas instantaneous water heaters utilize proprietary parts in most cases, making any repairs difficult and expensive.

Most single family homes need in excess of 3-5 GPM when they are using hot water, and study after study has shown that typical instantaneous water heaters do not deliver enough water to cover this requirement unless they are extremely high input. In some cases, manufacturers recommend significantly increasing the water temperature to overcome the hot water shortfall, which then leads to concerns with scalding or adding additional anti-scalding devices to the hot water fixtures.

In addition, I do not believe that efficiency test procedures adequately account for low water flow energy consumption for instantaneous water heaters. This lack of robust test procedures for these products could lead to inappropriate conclusions about the potential energy savings.

3) I believe that promoting an Energy Star program for water heaters in 2004 is premature, given the many requirements that gas-fired storage water heaters have to meet in that time frame, including flammable vapor ignition resistance and new Low Nox rules in southern California (SCAQMD) and Texas in early 2005. It does not seem reasonable to implement this additional hurdle at that time.

4) Incentives to promote Energy Star products such as solar, instantaneous, or heat pump water heaters, as discussed on page 15 of the report is an extremely bad idea in my opinion. The use of incentives for certain “Energy Star” products serves to further distort the market for these products, not make it more rational.

In summary, the DR&I report is a good first look at issues related to Energy Star labels for water heaters, but it has serious shortcomings if it is to be used as a criteria document. If Energy Star labeling for water heaters causes the **potential** for a shift to lower first cost electric resistance water heating in new home construction, it should not be adopted.

Daryl L. Hosler
Manager, Codes and Standards